Sky Country

SCorpion2

Attention please!

Paragliding, as any other flying sports, is potentially dangerous and can cause serious injury or death. As the owner of this paraglider you take exclusive responsibility for all risks associated with its use. Inappropriate use of the equipment may increase these risks. We do strongly recommend you to take classes at a paragliding school and choose a paraglider appropriate to your skills. This manual will assist you in mastering Scorpion-2.

Your Scorpion2

Thank you for choosing SC Scorpion-2! This manual will help you to get maximum information about your glider. This is information about the design of the Scorpion-2, advice how to use it best and how to care for it to ensure it has a long life. The manual also includes technical specifications and line plans. We hope that the Scorpion-2 will give you a lot of wonderful flying hours.

Scorpion-2 was specially designed for cross-country flying. It is suited for pilots, who has minimum 100 hours of flight experience. The paraglider has good aerodynamic characteristics along with high safety, which enables it to be used for recreational flying and participating in competitions. Scorpion-2-25.5 is AFNOR “Standard” certified.

You are not allowed to change the paraglider construction except adjusting the brake lines, because it might lead to unpredictability in flying and make the paraglider dangerous in certain flying situations.

You must never use Scorpion-2 for:

- jumps;
- tandem-flying;
- any other purpose except flying.

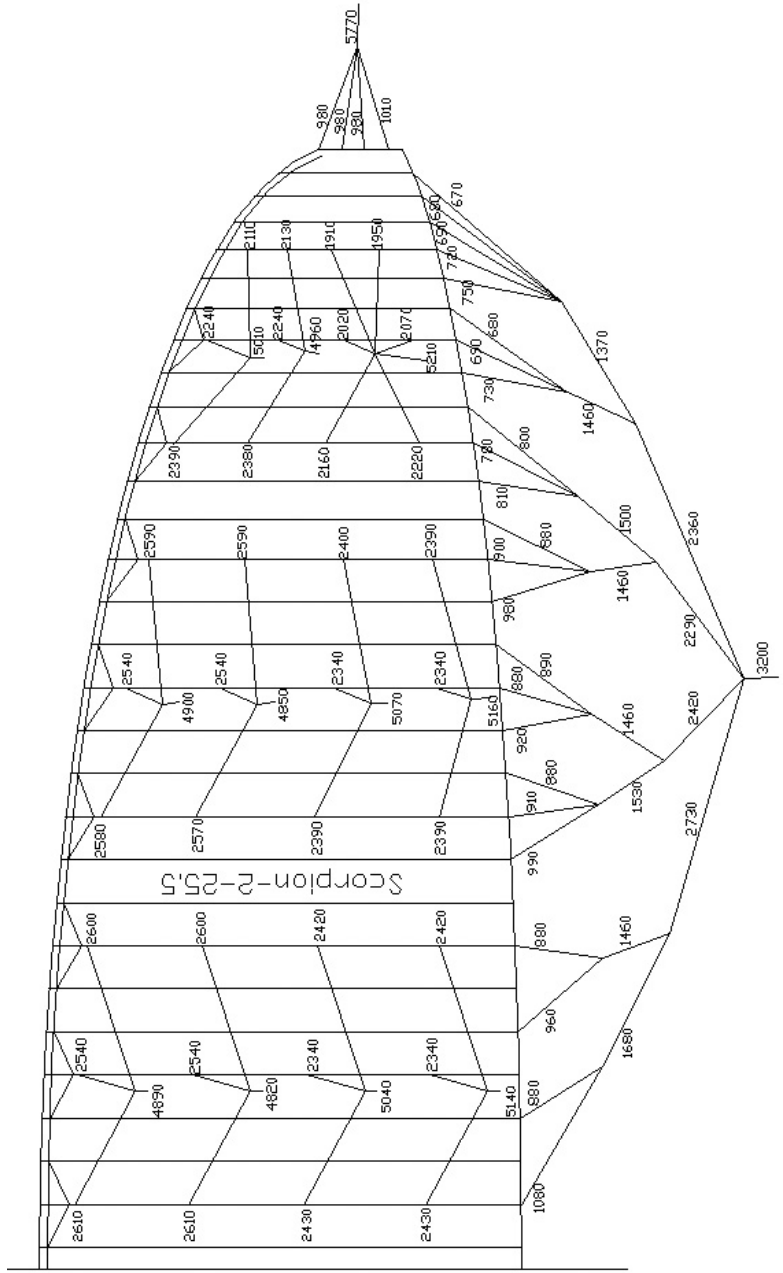
LINE PLAN

Overall lines lengths measured from the lower surface of the canopy to the inside edge of the maillon connecting them to the risers

Scorpion-2-25.5

Rib Number	A	B	C	D	Br	A-B	B-C	B-D
1								
2	7540	7460	7510	7610	8710	80	50	150
3								
4					8510			
5	7470	7390	7420	7520		80	30	130
6					8370			
7								
8	7530	7450	7500	7600	8290	80	50	150
9								
10					8160			
11	7520	7450	7500	7590	8080	70	50	140
12					8050			
13					8020			
14	7480	7420	7450	7540	7980	60	30	120
15					7990			
16					7950			
17	7530	7470	7510	7590	7870	60	40	120
18					7850			
19					7820			
20	7440	7370	7410	7470	7790	70	40	100
21					7810			
22					7770			
23	7290	7230	7270	7320	7730	60	40	90
24					7720			
25					7700			
26	7160	7120	7160	7200	7670	40	40	80
27					7640			
28					7630			
29					7620			
30	6790	6790	6790	6820		0	0	30

Lines measured from the lower surface of the canopy to the inside edge of the maillon. Measurements made under 5 daN load.



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TECHNICAL DATA

Model	Scorpion-2-24	Scorpion-2-25.5	Scorpion-2-27.5
Wing area,sq.m.	24	25.5	27,5
Wing span, m	11,8	12,17	12,64
Aspect ratio	5,809	5,809	5,809
Projected wing area, sq.m.	20,98	22,28	24,05
Projected span, m	9,49	9,78	10,16
Root chord, m	2,539	2,617	2,719
Tip chord, m	0,438	0,451	0,469
Number of cells	59	59	59
V min, km/h	23	23	23
V max, km/h	55	55	55
V y min, m/s	1.0	1,0	1,0
Total weight in flight, kg	70-85	80-100	95-120

LIST OF MATERIALS

- Top surface of the Scorpion-2 is made from Gelvenor LCN 0086 OLKS fabrics
- Bottom surface - Skytex 9092 E38A
- Ribs - Skytex 9092 E38A
- Leading edge reinforcements- Double laminated mylar
- Lines reinforcements – Dacron 170 g/sqm
- Top level lines – Cousin Dyneema 130 kg
- Bottom level lines – Liros Kevlar 220 kg
- Risers – polyamid webbing 25mm, 1200 kg
- Connectors – Mailon rapide 4 mm

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ACCELERATOR SYSTEM ADJUSTMENT

Scorpion-2 construction enables you to use it with an accelerator. To set up the accelerator on the ground:

1. Attach the risers to the harness.
2. Attach the accelerator.
3. Sit in your harness.
4. Ask a friend to pull your risers into their in-flight position.
5. While sitting in the harness, stretch your legs and push the loop of the accelerator as much as possible. (The rope will be stretched when pulled).
6. With your legs stretched, choose the length of the lead in such a way that accelerator harness is fully stretched and the pulleys on the risers touch.
7. Fix with a tie this length of the accelerator rope.

The accelerator rope should not pull the accelerator in normal flight. Otherwise, the permanently-speeded-up paraglider will not provide the declared reliability for collapses. You must set up the accelerator properly and make sure it is not entangled!

PRE-FLIGHT CHECK

- Lines are clear and leading edge is open
- Karabiners and maillons are tight
- All harness buckles are closed
- Helmet on
- Check reserve parachute
- Accelerator bar is attached
- Wind direction is perpendicular to the glider
- Airspace is clear

LAUNCHING

Your Scorpion-2 can take-off with both forward and reverse techniques.

Use forward technique when the wind is light, or there is no wind.

Move forward and your glider will start to inflate. You must maintain a constant pressure on the risers until the wing is overhead. Brake it a little and launch.

Use reserve technique in light to strong winds

Pull the glider by its A-risers. When it is overhead, pull the brakes to stop the glider, then turn and launch.

Practise ground handling a lot! It will help you feel your glider better.

IN FLIGHT CHARACTERISTICS

Scorpion-2 is specially designed for cross-country flying. It has long brake travel, light brake pressure and turns very well. When accelerated Scorpion-2 has a high glide ratio and remains solid and well-pressured. It also has very high resistance to deflations in turbulence.

NORMAL FLIGHT

Speed

You can change speed by simultaneously pulling or releasing the brakes. Flying at trim speed (hands up) your glider will achieve its best glide ratio. When brakes are pulled approximately 30 cm – you get its minimum sink rate. In order to increase your speed you can use the accelerator.

Accelerator use

Scorpion-2 reaches its maximum speed when you pull the accelerator to its maximum and release the brakes. Use this mode for long-distance flying and in strong winds. When using accelerator you will have a maximum speed of 55 km/h.

When you use the accelerator, your glider is more likely to collapse.

Turning

In order to make Scorpion-2 turn with a minimum sink and radius while pulling the internal brake you should pull very slightly the external one too. Use weightshift to decrease the spiral radius. If the thermal flow is narrow and strong, increase the tilt and the rotation speed by releasing the external brake.

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When you need to turn fast, you should swing Scorpion-2 in the opposite direction and then pull as hard as needed the internal brake.

Scorpion-2 has a long brake travel (about 90 cm). When full stall is about to happen, the load at the brakes increases, and ensures that you know about it.

FLYING IN TURBULENCE

You can help your glider to avoid different collapses in turbulence – you must fly actively for it. When the glider pitches forward – use the brakes to slow it, if it goes back – release brakes. These movements can be symmetric or asymmetric.

Let us remind you once again that you should be very careful choosing the weather to fly.

Descent techniques

Big Ears

While holding the brakes you should symmetrically pull the outer A-lines. For directional control of the glider use the weight shift. When you do big ears, the horizontal speed increases slightly. In order to return to normal flight, you should release the A-lines and pull the brakes a few times.

Spiraling is not permitted with big ears, because of the increased load on the remaining lines so that they can be physically deformed.

B - stall

When you need to lose height quickly because of the sudden worsening of the weather, risk of entering a cloud, etc, we recommend you B-stall.

Holding the brakes you take B-risers near the connectors. Forcefully but not suddenly, pull down the risers 25-30 cm and hold them as long as necessary. The wing gets a fold along the entire B-row and sinks at a rate of 8-10 m/sec. In order to return to normal flight simply release the B-risers and your Scorpion-2 will get out of the B-stall with a small front dive. You can use the brakes once the horizontal speed is gained. Scorpion-2 does not normally tend to go into deep stall once the B-risers are released. If this does happen (possibly for bad adjustment or under-loading), you should either pull the B-risers or swing the wing with the brakes.

Spiral-dive

When you hold either brake down for a long time, the glider goes into a fast sharp turn and loses a lot of height. The rotation axis can be somewhere between the pilot and the wing. The sink rate could be up to 12-15 m/sec. To get out of the spiral dive you must release the inner brake. Mind that Scorpion-2 may take one more turn after releasing the brake.

While spiral diving, the pilot experiences considerable overload up to 3 – 4g, so you can lose orientation. That is why we recommend spiral diving only when the sink rate of the B-stall is not enough.

Landing

In small winds, when you have 1-2 meters to the ground, you should pull the brakes gently to your arms' full length, so that you put your Scorpion-2 in stall at a height of about 0.5 m and the horizontal speed is zero.

In strong winds you must land facing the wind. If necessary you can fold the ears. As you approach the ground, you must take B-risers while holding the brakes. As soon as you hit the ground, you must turn towards the glider and pull B-risers running towards the wing. If the wing is flopping about a meter above the ground, release the B-risers and pull the brakes hard to your arms length. We do not recommend you to use the brakes in the strong wind, as the wing could catch the wind and pull the pilot.

Do not let the glider overtake you and hit the ground with its front edge, which leads to increased pressure in the wing and may damage it.

Deflations

Every paraglider may collapse in turbulent conditions.

Front collapses

Scorpion-2 comes out of symmetrical front collapse by itself. You can pull the brakes about a 20 cm to speed the re-inflation.

Asymmetric collapses can be controlled by weight-shifting away from the collapse and applying a small amount of brake to control the flight direction. At the same time you should use the brake to re-inflate the canopy.

If your Scorpion-2 collapses in accelerated flight, you must immediately release the accelerator to slow the glider down.

Remember that the deflated glider has higher stall speed and smaller brake travel. That is why you should be careful not to pull the brake too hard to avoid stall.

Full stall

Full stall happens when you pull both brakes too hard. To return to the normal flight you must release both brakes. After this usually comes a front dive with a possible front deflation.

Just because Scorpion-2 warns the pilot about stalling by increasing the brake load, it is highly unlikely for you to enter it unexpectedly.

Asymmetrical stall

It can take place when you pull one of the brakes too hard, or while spiraling at a small speed in turbulence you increase the angle of attack. Rotation in the asymmetrical stall is called negative spiral. This is one of the most dangerous flying situations. In order to get out of asymmetrical stall, just release the brakes. There may follow side thrust forward with a following wing collapse.

Deep stall (parachuting)

To get out of this mode you must pull A – risers or swing the wing by pulling and releasing the brakes (preferably the first one).

Self-rotation

Increasing rotation usually takes place when the pilot has not reacted properly to the asymmetric collapse of the accelerated paraglider. Try to slow down the rotation by counter-shifting your weight in the harness and pulling the outer brake. If the self-rotation is increasing, drop the rescue parachute quickly in the direction of the rotation. This mode can also take place when you make extreme turns of the overloaded paraglider.

Cravat

If the collapsed part of the canopy is entangled in the lines, you must try to release it by pulling the ear-line. If you cannot do it and the rotation is increasing, you must use the parachute.

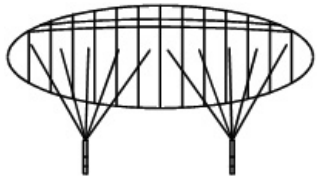
We do not recommend you to use the above-mentioned risky techniques. You can use them at a sufficient height over the water when you are wearing a life jacket and there is an experienced instructor in a boat.

IN FLIGHT DAMAGE

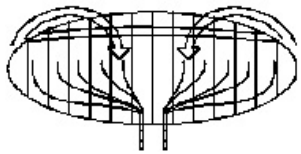
Estimate the damage. If a brake has untied – no problem as Scorpion-2 can be steered well by weight shift and pulling the back risers. Even if the damage allows for a sustainable controlled flight, you should land as soon as possible. If normal flight is impossible, you must use the parachute.

PACKING YOUR SCORPION-2

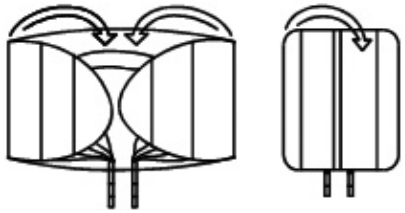
Try to pack your Scorpion-2 as loosely as the rucksack allows, because every fold weakens the cloth. Special care should be taken about the rib reinforcements. Follow this scheme:



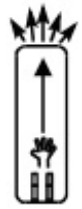
Spread the glider on the ground



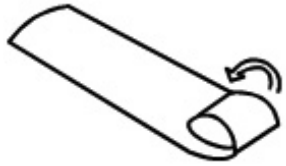
fold the lines



Fold the canopies



press the air out



Roll up

pack in the rucksack

General Glider Care

Follow these rules and your Scorpion-2 will be in good condition:

- Do not expose your Scorpion-2 to the sun any longer than necessary
- Keep Scorpion-2 away from water and other liquids
- Do not let the front edge hit the ground
- If wet dry Scorpion-2 in shade. If soaked in salty water, rinse the glider thoroughly in non-salty water
- Keep your Scorpion-2 away from fire
- Do not put anything heavy on your glider, do not pack it in a rucksack too tightly.
- Regularly inspect the canopy, lines, risers and harness. If you find any defects, contact your dealer or the manufacturer. Do not attempt to self-repair the paraglider!
- If you detect a damaged line, inform the dealer or manufacturer about the line number according to the line plan
- Keep your Scorpion-2 in a rucksack in a dry well-ventilated place under neutral temperature and humidity conditions
- If you do not use Scorpion-2, then once a month you should unpack it, ventilate it well, and then pack it back in the rucksack.
- Do not wash Scorpion-2. Do not use detergents or solvents. Clean dirty places with wet soft cloth or sponge.

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Warrantee and Wing Repairs

The producer guarantees the correctness of the declared characteristics and the paraglider's normal performance for one year after the purchase date, but no more than 200 flying hours. The producer conducts special, and after-warranty repairs and maintenance at the owners' request for an extra price.

We recommend to inspect your paraglider (including checking suspension line strength, line geometry, riser geometry and permeability of the canopy material) one time at two years, or every 100 hours of flying time (whichever comes first); Those inspection must be made by manufacturer or dealer.

If damaged, your Scorpion-2 must be repaired by manufacturer, or dealer.

Small holes in Gelvenor fabrics you can repair with silicon clue and a peace of Gelvenor cloth. Small holes in Skytex may be repaired with sticky rip-stop tape.

Attention please!

The producer bears no responsibility for non-compliance with the stated characteristics if:

- the user manual is not followed;
- the paraglider structure is changed in any way;
- the paraglider is self-repaired.

Serial number	123	
Production date	2007.01.01.	
Test pilot	Igor	

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